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INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

PATTERSON, MARC A

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ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID C. COLLINS,
JEFFREY ALLEN NIELSEN,
ISAAC FARR, and CHRISTOPHER ORIAKHI

Appeal 2008-4532
Application 10/678,475
Technology Center 1700

Decided: September 24, 2008

Before CHUNG K. PAK, JEFFREY T. SMITH, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 1-10. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).
We AFFIRM.

INTRODUCTION

Appellants disclose solid freeform fabrication systems to form three-dimensional objects using ink-jet technology (Spec. 1). Solid freeform fabrication systems use sequential layer deposition to form a desired object

out of support material and build material (Spec. 1). Appellants claim a solid freeform fabrication system that, in relevant part, has “support material also being configured to form a feature that imparts a predetermined property, other than support, within the three-dimensional object” (claim 1).

Claim 1 is illustrative:

A solid freeform fabrication system for producing a three-dimensional object with embedded features, comprising:
build material configured to be deposited in layers to form a three-dimensional object; and
support material configured to be deposited adjacent to the build material for supporting the build material during formation of the three-dimensional object, said support material also being configured to form a feature that imparts a predetermined property, other than support, within the three-dimensional object.

The Examiner relies on the following prior art reference as evidence of unpatentability:

Ryan	WO 98/21626	May 22, 1998
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The rejection as presented by the Examiner is as follows:

1. Claims 1-10 are rejected under 35 U.S.C. § 102(b) as being unpatentable over Ryan.

Appellants argue claim 1 only. Accordingly, we address Appellants’ arguments and evidence with regard to claim 1; claims 2-10 stand or fall with claim 1.

OPINION

Appellants argue that Ryan fails to teach the “support material can also being configured to form a feature that imparts a predetermined

property, other than support, within the three-dimensional object” or “build material configured to be deposited in layers to form a three-dimensional object” as recited in claim 1 (App. Br. 16-18). Specifically, Appellants contend that Ryan’s disclosure that the relief material (i.e., support material) is formed into a “retaining feature” to retain the functionalizing material (i.e., build material) in the feature does not teach a function “other than support” as claimed (App. Br. 16-18). Appellants contend that a material requiring retention as Ryan’s functionalizing material does, is not configured for deposition by layers (App. Br. 18).

We have considered all of Appellants’ arguments and are unpersuaded for the reasons below.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

Ryan’s invention relates to multifunctional microstructures comprising fine line microcircuits and/or micro arrays of functionalizing material (Ryan, 1: 3-4). Ryan discloses forming a layer of relief material having relief features formed therein to provide at least one retaining feature, wherein the functionalizing material is deposited within and substantially or partially fills or lines the at least one retaining feature (Ryan, 2:25-30; 3:1). Ryan defines the “retaining feature” as “a feature formed between at least two relief features, defined by the relief features as its side walls and defined by the first layer . . . as its base, in [a] manner adapted to contain the functionalising material between its side walls . . .” (Ryan, 7:18-22). Ryan discloses that the relief features may be formed by “progressive writing or

dispensing UV freeforming technology using a suitable writing or dispensing nozzle associated with the freeforming methods” (Ryan, 4:4-5; 21:18-24). Ryan also discloses that the functionalizing material (i.e., third material (23)) may be deposited as layers (Ryan, 22:15-18; Figure 1b).

Based on these disclosures and contrary to Appellants’ arguments, we find that Ryan discloses the relief material (i.e., support material) is “configured to form a feature that imparts a predetermined property, other than support, within the three dimensional object” as claimed. Specifically, the retaining features provide the additional retention function in addition to support. “Retain” is defined as “[t]o keep in a fixed place or condition; to hold secure, intact, or the like; to prevent escape, loss, leakage, detachment of.” *Webster’s New International Dictionary of the English Language*, 2nd Ed. 2126 (1934). Ryan’s definition of “retaining feature” corresponds with this definition because the feature keeps in a fixed place the functionalizing material (i.e., the build material). In other words, Ryan’s retaining feature not only supports the functionalizing material (i.e., build material), it also confines it so as to prevent its lateral movement. The Examiner notes this when he states that the side walls of the retaining feature “provide a barrier to side movement” (Ans. 5).

Appellants contend that Ryan’s “retention” property constitutes merely support. However, “support” is defined as “to hold up or serve as a foundation or prop for.”¹ In contrast, the definition of “retain” noted above indicates that, in addition to the support function, a securing function is also required. In other words, the retaining feature not only supports the

¹ <http://www.merriam-webster.com/dictionary/support>, *Merriam-Webster Online* (accessed September 12, 2008).

functionalizing material (i.e., build material), it also secures the functionalizing material (i.e., build material) to the relief material (i.e., support material) by keeping it in a fixed place. Accordingly, Appellants' argument is without persuasive merit.

Furthermore, we are unpersuaded by Appellants' argument that Ryan's functionalizing material (i.e., build material) is not configured to be deposited in layers. Ryan clearly indicates that the functionalizing material (i.e., third layer 23 or build material) may be deposited in multiple layers (Ryan, 22:16-17; Figure 1b). Appellants have not provided any evidence to show why deposition of the functionalizing material to fill or partially fill the retaining feature in the relief material would not constitute a layer of functionalizing material (i.e., build material). There is no requirement in the claim that the build material be self-supporting (i.e., not reliant on the sides of a cavity for support). Appellants' further argument regarding the build material appears to be that a layer must extend across the entire surface of the relief material (Reply Br. 11), but the claim is not so limited.

For the above reasons, we determine that Appellants' arguments are without persuasive merit and we sustain the Examiner's § 102 rejection of claim 1-10 over Ryan.

DECISION

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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Application 10/678,475

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